



ARLINGTON COUNTY, VIRGINIA

County Board Agenda Item Meeting of June 16, 2012

DATE: June 7, 2012

SUBJECT: Green Building Density Incentive Policy for Site Plan Projects

C. M. RECOMMENDATION:

Amend the County's Green Building Density Incentive for Site Plan Projects Policy (see attached) to evaluate special exception site plan requests for bonus density consistent with Section 36.H.5.a.(1) of the Zoning Ordinance.

ISSUES: This report provides an update to the voluntary Green Building Density Incentive Policy presented to the County Board on March 14, 2009. Changes to the bonus density incentive amounts are proposed based on the success of the policy to date and green building market transformations in the construction industry over the past three years. The proposed update also addresses the greenhouse gas reduction goals outlined in the Community Energy Plan. No issues are identified.

SUMMARY: It is proposed that Arlington County strengthen its commitment to sustainable community and green building efforts through the update and revision of its green building policy and green building bonus density program for site plan projects in the County. These programs rely on the Leadership in Energy and Environmental Design (LEED) rating system, originally developed by the U.S. Green Building Council (USGBC), as a means of evaluating proposed site plan projects and encouraging the construction of energy efficient and environmentally sustainable buildings. The proposed revisions to the County's program include the following:

- In exchange for a commitment to a minimum level of energy savings in addition to LEED Silver Certification or above, site plan projects may request Floor Area Ratio (FAR) bonus. LEED projects at the basic Certified level will no longer be considered for green building density incentive bonus.
- Staff proposes that the minimum level of energy savings for office and commercial projects be 20% above the baseline ASHRAE 90.1-2007 standard as defined under *LEED*

County Manager:

BMD/GA

County Attorney:

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Staff: Joan B. Kelsch, DES; Jessica Abralind, DES

EA Credit 1 – Optimize Energy Performance in the LEED 2009 rating system. In exchange for LEED certification at the Silver level or higher and a minimum 20% energy savings, office and commercial projects may request up to 0.20 Floor Area Ratio (FAR) bonus for LEED Silver certification, 0.35 FAR bonus for LEED Gold certification, and 0.45 FAR bonus for LEED Platinum certification.

- For residential site plan projects, staff proposes that the minimum level of energy savings be 18% above the baseline ASHRAE 90.1-2007 standard as defined under *LEED EA credit 1 – Optimize Energy Performance* in the LEED 2009 rating system. In exchange for LEED certification at the Silver level or higher and a minimum 18% energy savings, residential projects may request up to 0.25 Floor Area Ratio (FAR) bonus for LEED Silver certification, 0.40 FAR bonus for LEED Gold certification, and 0.50 FAR bonus for LEED Platinum certification.
- Each project will be evaluated on a case-by-case basis.
- In order to begin addressing operational energy efficiency in these new buildings, staff proposes to add two new components to the site plan conditions for bonus density incentive projects:
 - An additional 0.10 FAR may be awarded to buildings that commit to LEED certification and minimum energy savings plus either ENERGY STAR building certification or LEED for Existing Buildings (LEED-EB) certification, both of which are based on actual energy usage.
 - All project owners will also be asked to provide ENERGY STAR Portfolio Manager utility reporting data after occupancy each year for 10 years. These data are provided for informational purposes only. This is not intended to be a performance review of the energy savings in the building over its lifetime since energy savings are largely dependent upon tenant usage and building maintenance which are outside the developer's control. However, these data will allow staff to evaluate the correlation between the predictive energy model used to design and construct the building and the actual energy used in the building.

The Green Building Program will be reviewed (and updated if appropriate) at least every three years or when the LEED green building rating system is updated to ensure that the program remains current with emerging green building technologies, national trends, and the needs of the community.

BACKGROUND: This report proposes enhancing and upgrading the current green building submission requirements and the green building density incentive program for site plan projects. Originally adopted in 1999 and updated in 2003 and 2009, the green building program has been an effective tool for reducing the environmental impacts of buildings on the community.

Since the early 1960s, Arlington has made a commitment to smart growth, primarily through Metro-oriented development planning and land use policies on the General Land Use Plan. For

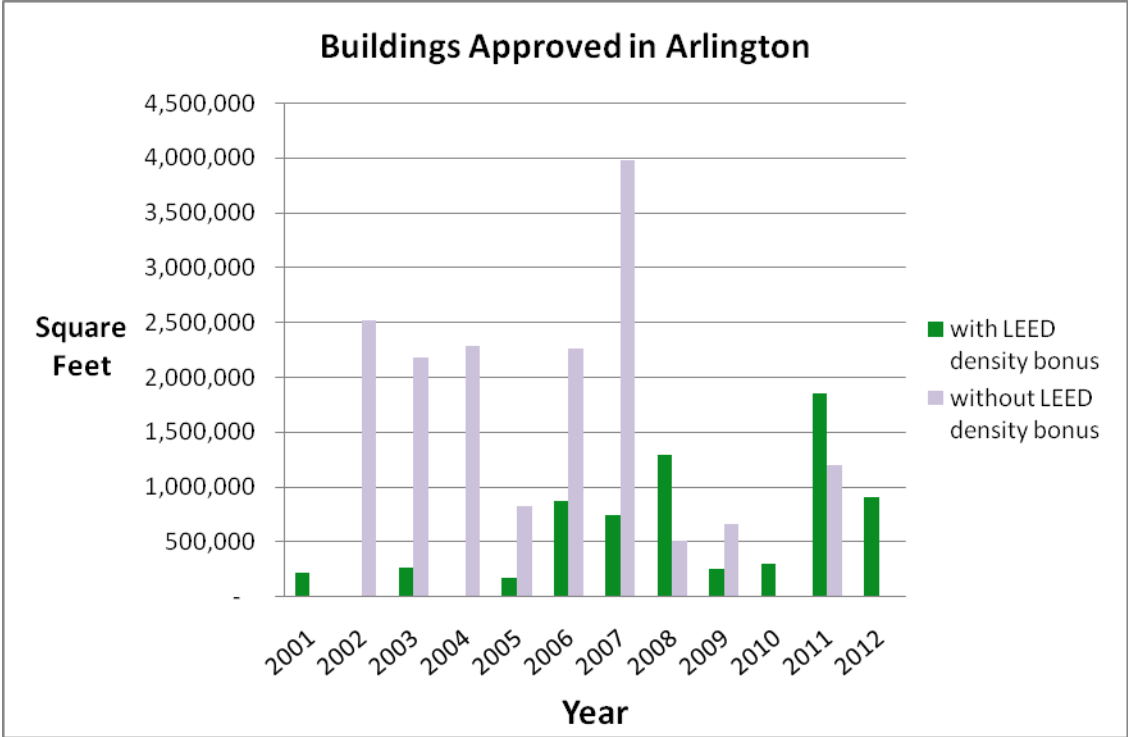
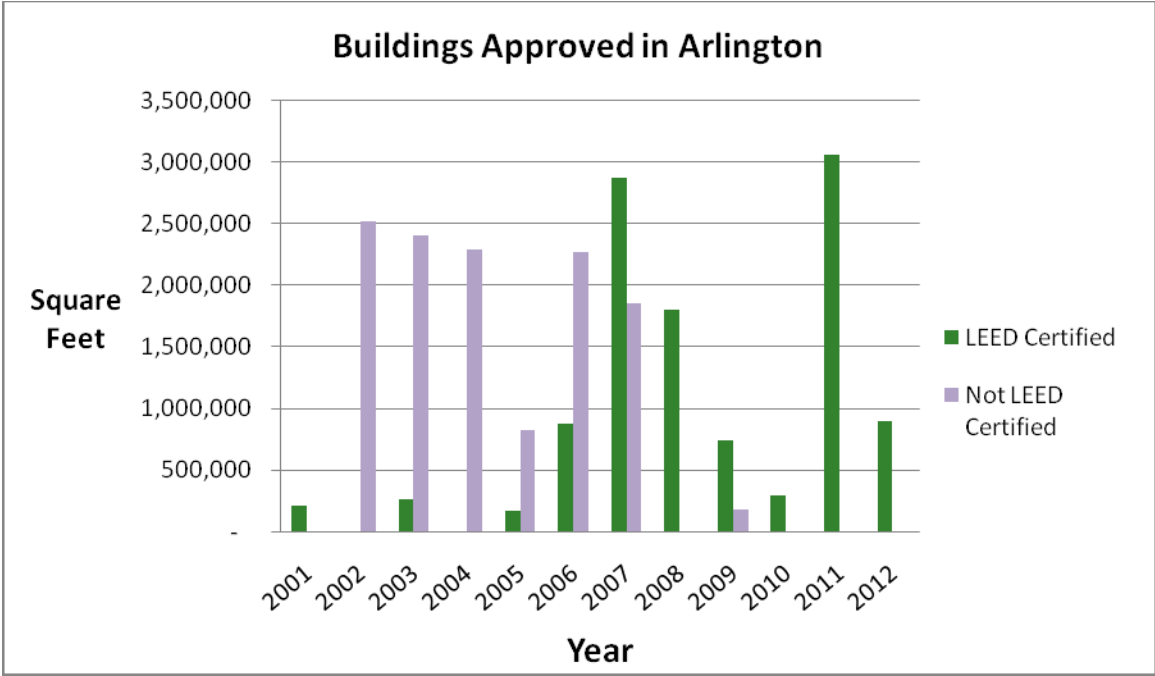
the past 12 years, Arlington has used the LEED green building rating system to guide the design and construction of new public facilities in the County. Arlington Public Schools (APS) also uses LEED to guide new school construction. LEED is now the principal green building rating system used nationwide. With the recent rapid growth of the green building industry in the region and the development of specific LEED rating systems for different building types, fully integrating sustainability into the design, construction, operation, maintenance, and demolition of projects is now understood and easily achieved. Because of the greater acceptance of LEED, staff proposes changes to the green building incentive program to encourage developers to focus on incorporating energy efficiency into site plan projects.

Arlington's original Pilot Green Building Incentive Program (adopted in October 1999) applied only to commercial office space and offered up to 0.25 FAR bonus density in exchange for obtaining a LEED Silver certification from the USGBC. The program was nationally recognized as being an innovative approach to encouraging green building. However, County staff found that the original program excluded developers who were interested in incorporating green building components but who were not prepared to achieve the LEED Silver rating.

In 2003, the County's green building program for site plans was updated and strengthened. The original program did not apply to multi-family residential projects, rehabilitation of existing buildings or other types of site plan development, even though the LEED rating system can be used to enhance and measure the "greenness" of these types of projects. The 2003 revision encouraged all site plan projects (not just commercial office) to participate in the voluntary incentive program, and the program was expanded to include the full range of LEED awards (including Certified, Silver, Gold, and Platinum). Density could be requested in an amount commensurate with the applicant's level of commitment to sustainable building (ranging from a maximum of 0.15 FAR for baseline LEED Certified projects to a maximum of 0.35 FAR for a LEED Gold or Platinum project).

The 2009 update to the green building bonus density program reduced the amount of bonus offered for LEED Certified and Silver projects since market transformation made it easier to achieve these levels of LEED certification. The update also incorporated an additional 0.05 FAR bonus for residential buildings (high-rise multi-family apartments and condominiums) over the baseline bonus offered for office. The additional bonus for residential projects was added because it is more difficult for residential projects to achieve some of the LEED credits, as compared to office buildings. This small additional bonus has resulted in all participating residential site plan projects committing to LEED Silver certification or above since 2009.

The following charts summarize the site plan projects that have been approved with bonus density in exchange for LEED certification. A summary table is included as Attachment 1.



Since the first LEED bonus density project was approved in 2001, 79 site plan buildings have been approved by the County Board. Of these 79 buildings, 27 have been awarded additional density in exchange for an agreement to achieve LEED certification. Of these 27 buildings, seven have completed construction, achieved their LEED commitments, and complied with the green building site plan conditions in exchange for bonus density.

In addition, 12 buildings committed to LEED certification without bonus density. Staff views this as an indication that LEED certification program has been accepted as a useful design tool in Arlington's market. These buildings are located in areas of Arlington like Pentagon City, Rosslyn, and Crystal City where zoning allows for greater density. Also, several townhouses and affordable housing developments that are part of site plans have committed to completing green building certification through Arlington's Green Home Choice program or EarthCraft Virginia.

Since 2009, 16 site plan project buildings (office and residential) have been approved by the County Board. Of these, 12 have made a LEED commitment due to the bonus density incentive. This includes one Certified, six Silver, and five Gold rated buildings.

In total, 391,285 square feet of space potentially will be added in the County as a result of the green building bonus density program (both office and residential) since its inception in 1999.

Staff will continue to evaluate national and regional green building trends and participation in the density incentive program, and will conduct a formal analysis in three years, or sooner as market trends and LEED updates warrant.

DISCUSSION: The green building bonus density program has been successful in Arlington. Regionally, Arlington's program sparked interest in Maryland and Washington, D.C., and both jurisdictions now have LEED green building programs. Other Northern Virginia jurisdictions incorporate LEED into their special exception review process, although none include an incentive program.

Although most site plan projects commit to achieving high levels of LEED certification, the LEED projects in Arlington do not include significant energy efficiency components (as defined by the LEED Energy Optimization credit (EA1.1)) above the minimum LEED prerequisite. The proposed changes to the green building bonus density incentive program are intended to incentivize exceptional energy efficiency while continuing the focus on holistically designed and constructed buildings.

The issue of energy efficiency

Although the development community has embraced LEED, exceptional energy efficiency strategies have not uniformly been incorporated into buildings. It is difficult to identify exactly how much additional upfront cost is required to make a building more energy efficient. Each building is unique and energy efficiency opportunities vary depending on the type and size of the building (office or residential), building orientation, the building envelope (all glass buildings offer far fewer opportunities for energy efficiency), exterior color, roof type and color, insulation type and thickness, amount and type of glazing, daylighting, interior and exterior lighting

systems, HVAC systems, and building automation systems. These factors must be carefully evaluated and there is no one specific method or set of components that will guarantee good energy efficiency in every building. Depending on the building's design and engineers' evaluation, either a central or distributed heating/cooling system may be most efficient. LEED requires all projects to run an energy model and use these data as a tool to help optimize the unique energy and cost efficiencies in the proposed buildings.

If incorporating energy efficient components into a building was cost effective, developers would be building more energy efficient buildings now. There are several reasons why added investment in energy efficiency may not be cost effective in Arlington:

- Utility rates in Virginia are relatively low. This means that the payback period based on utility cost savings on an initial energy efficiency investment is too long to make the investment beneficial. For example, a report recently commissioned by staff shows that the return on investment on installing an energy efficient 4-pipe hydronic HVAC system is approximately 15 years. Unless an owner intends to keep the building for at least this period of time, the investment is not cost effective.
- For developers who lease the building and whose tenants pay their own utility bills (office or residential), the energy savings earned during the life of the building benefits the tenant, not the developer. Thus, the developer never sees the payback on the initial investment.
- Similarly, for developers who sell their buildings soon after completion, the energy savings benefit the new owner not the developer who made the energy efficiency investments.

This update proposes to continue to provide an incentive to encourage upfront investment in energy efficient building design and construction as part of an overall environmentally responsible LEED building.

Measuring energy efficiency

Energy efficiency for a building is estimated using the nationally accepted ASHRAE 90.1 energy standard and is calculated using energy modeling software. The ASHRAE 90.1 standard is also used as the energy code throughout the US. Currently, the energy code in Virginia is based on the ASHRAE 90.1 dated 2007. The current LEED energy prerequisite requires 10% more energy efficiency than the ASHRAE 90.1-2007 standard. This proposed policy update strives to incentivize buildings to achieve 20% more energy efficiency over the ASHRAE 90.1-2007 baseline in order to ensure the future energy efficiency of the building and to meet the Community Energy Plan's long term energy efficiency goals.

ASHRAE updated the 90.1 energy standard in 2010 (known as ASHRAE 90.1-2010) to incorporate significantly higher energy performance characteristics. Projects built to this standard are predicted to be on average 20% more energy efficient than those built using the ASHRAE 2007 standard. ASHRAE 90.1 -2010 has not been adopted in Virginia yet.

LEED Version 4, set to be released in mid-2013, is slated to include the requirement that all buildings must be designed and constructed to be 10% more energy efficient than the ASHRAE 90.1-2010 version. Therefore, the prerequisite for LEED Version 4 will require a 10% improvement over what this proposed policy update intends to achieve. Staff will review the LEED program and the incentive program when the new LEED standard becomes effective to update this policy as appropriate.

Proposed changes

Bonus Density, LEED, and Energy Efficiency: Staff recommends adjusting the bonus density program to encourage holistically designed LEED certified buildings that include a significant energy efficiency component. Bonus density will no longer be offered for the baseline LEED Certified level. In order to participate, commercial office and mixed use projects will be required to incorporate energy efficiency components designed to achieve energy efficiency rates 20% more than the ASHRAE 90.1-2007 baseline. Multi-family residential projects will be required to incorporate energy efficiency components designed to achieve energy efficiency rates 18% more than the ASHRAE 90.1-2007 baseline.

The proposed Green Building Density Incentive Policy for Site Plans is attached (Attachment 2). Table 1 below outlines the proposed changes to the bonus density portion of the program.

Table 1
Summary of Proposed Changes to the
Green Building Bonus Density Incentive Policy
June 2012

LEED Level	Existing Bonus		Proposed Bonus	
	Office	Residential	Office (20% EE)	Residential (18% EE)
Certified	0.05 FAR	0.10 FAR	n/a	n/a
Silver	0.15 FAR	0.20 FAR	0.20 FAR	0.25 FAR
Gold	0.35	0.40	0.35	0.40
Platinum	0.45	0.50	0.45	0.50

EE – Energy Efficiency (All levels of LEED certification - Silver, Gold, and Platinum - will require the minimum level of energy savings above the baseline ASHRAE 90.1-2007 standard as defined under LEED EA credit 1 - *Optimize Energy Performance* in the LEED 2009 rating system.)

The energy efficiency percentages were determined based on data from Arlington site plans and extensive interviews with energy auditors, energy modelers, architects, engineers, and developers.

Ongoing Energy use in buildings: Energy models are predictive and guide the design and construction of the building. However, they do not ensure that the building will operate to the specified level of energy efficiency. Operational energy use depends on many variables including weather, building use, hours of occupancy, etc., which can change over the course of a building's life.

In order to address operational energy efficiency in these new buildings, staff proposes to add two new components to the site plan conditions for bonus density incentive projects:

- An additional 0.10 FAR may be awarded to office buildings that commit to LEED certification plus either ENERGY STAR building certification or LEED for Existing Buildings (LEED-EB) certification, both of which are based on actual energy usage.
- All bonus density project owners will also be asked to provide ENERGY STAR Portfolio Manager utility reporting data after occupancy each year for 10 years. These data are provided for informational purposes only. This is not intended to be a performance review of the energy savings in the building over its lifetime; as such energy savings is largely dependent upon tenant usage and building maintenance which is outside the developer's control. However, these data will allow staff to evaluate the correlation between the predictive energy model used to design and construct the building, and the actual energy used in the building.

Enforcement

Enforcement of the green building density incentive program will continue to require the developer to post a financial security prior to issuance of the partial Certificate of Occupancy for the last floor of space. In general, the financial security is calculated based on the square feet of bonus density approved multiplied by the average rental rate for space in the specific area of the County (as calculated by Arlington County's Real Estate Section). If a project fails to achieve the promised LEED certification after receiving the bonus density, the financial security amount defaults to the County. To date, seven projects have posted financial security and all have met their LEED obligations so the securities were released. No projects have defaulted on their LEED green building bonus density commitments.

A second financial security will be posted for additional GFA awarded for a commitment to ENERGY STAR building certification or LEED-EB certification. The second financial security amount will default to the County if the project does not achieve the required ENERGY STAR certification or LEED-EB certification.

Implementation

Assuming these policy changes are adopted by the County Board in June, this policy update will be implemented as follows.

- Projects already accepted by the County Manager can either opt-in to the updated program or use the old program. Staff will continue to encourage all projects to focus on energy efficiency.
- Projects may participate in the old or new incentive program if accepted by the CM on or before August 31, 2012.
- Any project wishing to participate in the incentive program and accepted by the CM after August 31, 2012 will only have the option to use the updated program. For clarity, this means projects filed but not accepted by August 31, 2012 will only have the option to use the updated program.

Community Process

Over the past eight months, staff presented the proposed changes to the green building bonus density program to the developer groups (Northern Virginia Building Industries Association (NVBIA) and the National Association of Industrial and Office Parks (NAIOP)), as well as energy modelers, energy auditors, LEED consultants, architects, mechanical engineers, and land use attorneys. Comments from these groups were considered and the final proposal reflects their input.

The Planning Commission provided comments at an information session on May 7, 2012. Staff discussed the proposal with the Long Range Planning Committee on May 23, 2012. The Planning Commission heard the final proposal on June 6, 2012, and voted to recommend approval. Comments from the Commission related to the proposed policy have been addressed.

Staff discussed the bonus density issue with E2C2 during the fall 2011 and formally presented the proposed changes to E2C2 on January 23, 2012 and May 21, 2012. E2C2 supported the green building density proposal in a letter to the Board dated June 1, 2012.

Attachment 1
Summary of Approved Site Plan Projects in Arlington (excludes townhouses)
(2009 - Present)

<p>Total number of site plan buildings:</p> <p>16 buildings</p>	<p>Represents 13 site plan projects (several site plans have multiple buildings)</p>
<p>Buildings with LEED green building commitment due to incentive bonus:</p> <p>12 buildings</p>	<p>75% of total site plan buildings participate in LEED incentive program</p>
<p>Office</p> <p style="padding-left: 40px;">Total GFA approved 2,885,932 ft²</p> <p style="padding-left: 40px;">LEED with bonus 1,683,572 ft²</p>	<p>71% of site plan office space participates in LEED incentive program</p> <p>Office projects include: 1 Certified 2 Silver 3 Gold</p>
<p>Residential</p> <p style="padding-left: 40px;">Total units approved 2,243 units</p> <p style="padding-left: 40px;">LEED with bonus 1,679 units</p>	<p>78% of site plan residential units participate in LEED incentive program</p> <p>Residential projects include: 4 Silver 2 Gold</p>
<p>Additional space added as result of green building density policy:</p> <p>198,364 ft^{2*}</p>	<p>4% additional space added to site plan projects as a result of the green building bonus density incentive policy</p>

*Includes only the bonus square footage that was added to buildings as a result of the LEED bonus density program.

Attachment 2
Green Building Bonus Density Incentive Policy for Site Plans
Arlington County, Virginia

Arlington County’s Green Building Bonus Density Incentive Policy is a voluntary program to evaluate special exception site plan requests for bonus density consistent with Section 36.H.5.a.(1) of Arlington County’s Zoning Ordinance. All site plan project developers are encouraged to include specific green building components in site plan projects and to commit to becoming certified under the U.S. Green Building Council’s (USGBC) Leadership in Energy and Environmental Design (LEED™) 2009 program.

In addition, Arlington offers potential levels of bonus density (as measured in Floor Area Ratio (FAR)) when the developer commits to green building components and LEED certification including energy efficiency, as follows:

LEED Level	Proposed Bonus	
	Office (20% EE)	Residential (18% EE)
Silver	0.20 FAR	0.25 FAR
Gold	0.35	0.40
Platinum	0.45	0.50

EE – Energy Efficiency (All levels of LEED certification - Silver, Gold, and Platinum - will require the minimum level of energy savings above the baseline ASHRAE 90.1-2007 standard as defined under LEED EA credit 1 - *Optimize Energy Performance* in the LEED 2009 rating system.)

All site plan projects that increase density or height in exchange for LEED certification and minimum energy savings, are expected to have a LEED Accredited Professional on the development team. Projects are also expected to fully evaluate all LEED components and incorporate at least enough LEED credits to achieve baseline LEED Silver and minimum energy savings in order to minimize the environmental impact of the project on the site and the community. A specific LEED certification level and number of energy efficiency credits (as measured by LEED EA Credit 1) are identified and included in a site plan condition. County staff reviews LEED compliance at specific permit applications throughout the demolition and construction process. The applicant’s development team submits the project’s LEED documentation to the USGBC for review and official LEED certification within a specific time frame identified in the site plan condition.

An additional 0.10 FAR may be awarded to buildings that commit to LEED certification and minimum energy savings, plus either ENERGY STAR building certification or LEED for Existing Buildings (LEED-EB) certification, both of which are based on actual energy use.

Because some green components are not complete until a building is operational, enforcement of the green building density incentive policy requires the developer to post a form of financial security acceptable to the County prior to issuance of the first Certificate of Occupancy. In general, the financial security amount is calculated based on the size of the bonus density approved multiplied by the average rental rate for space in the specific area of the County (as

calculated by Arlington’s Real Estate Section). If a project fails to achieve the promised LEED certification after receiving the bonus density, the security amount defaults to the County as follows:

<u>Points missed</u>	<u>Percentage of financial security forfeited</u>
<u>1-2</u>	<u>25%</u>
<u>3-4</u>	<u>50%</u>
<u>5-6</u>	<u>75%</u>
<u>7+</u>	<u>100%</u>

A second financial security will be posted for additional GFA awarded for a commitment to ENERGY STAR building certification or LEED-EB certification. If a project fails to achieve the promised LEED-EB or ENERGY STAR certification, the second security will default to the County.

The final component of the proposed policy stipulates that all bonus density project owners will provide ENERGY STAR Portfolio Manager utility reporting data after occupancy each year for 10 years. These data are provided for informational purposes only. This is not intended to be a performance review of the energy usage in the building; these data will allow staff to evaluate the correlation between the predictive energy model used to design and construct the building, and the actual energy used in the building.